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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,765	11/17/2003	Ernst-Christian Richter	543822001700	8749
25227	7590	04/06/2005		
MORRISON & FOERSTER LLP 1650 TYSONS BOULEVARD SUITE 300 MCLEAN, VA 22102			EXAMINER KIM, PETER B	
			ART UNIT	PAPER NUMBER
			2851	

DATE MAILED: 04/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/713,765	<b>Applicant(s)</b> RICHTER ET AL.	
	<b>Examiner</b> Peter B. Kim	<b>Art Unit</b> 2851	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>52004</u> . | 6) <input type="checkbox"/> Other: ____  |

**DETAILED ACTION*****Drawings***

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-3, 8-11, 18 and 20 are rejected under 35 U.S.C. 102(a) as being anticipated by Matsuyama et al. (Matsuyama) (2002/0171815).

Matsuyama discloses an optical lithography method and an optical device for lithography (Fig. 2) for exposure of wafer (W) comprising lens system (PL) with a plurality of individual lenses (Fig. 14), a photomask (R), wherein in an area between the mask and the lens system is a medium (G1) provided which has a refractive index greater than 1.2 (para 247). The area between the lens system and the wafer is air which has a refractive index of approximately 1 (Fig. 2).

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Claims 1-6, 9, 12-16, 18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Fukuda et al. (Fukuda) (JP 07220990).

Fukuda discloses an optical lithography method and an optical device for lithography (Fig. 1) for exposure of wafer (5) comprising lens system (7) with a plurality of individual lenses (Fig. 1), a photomask (3), wherein in an area between the mask and the lens system is a medium (14), which is water, which has a refractive index greater than 1.2 (water has refractive index greater than 1.2). Fukuda also teaches water, which has refractive index greater than 1.2, provided as a medium between the lens system and the wafer (Fig. 1, ref 14).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda et al. (Fukuda) in view of Epple et al. (Epple) (2002/0109237).

Fukuda discloses the claimed invention as discussed above; however, Fukuda does not disclose the liquid comprising perfluoropolyether (PFPE). Epple discloses in para 0035, PFPE as the liquid for immersion. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to replace the water of Fukuda with PFPE of Epple in order to obtain refractive index of 1.3 or higher.

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Claims 7 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda et al. (Fukuda) in view of Komoriya et al. (Komoriya) (5,025,284).

Fukuda discloses the claimed invention as discussed above; however, Fukuda does not disclose the medium which is gas. Komoriya discloses the medium (7) between the mask and the lens system which is gas. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the gas as the medium instead of water between the mask and the lens system and between the lens system and the wafer as in Fukuda in order to control and adjust the refractive index as taught by Komoriya in col. 6, lines 22-55.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuyama et al. (Matsuyama) in view of Shiraishi (6,665,050).

Matsuyama discloses the claimed invention as discussed above; however, Matsuyama does not disclose a phase shift mask. Shiraishi discloses the use of a phase shift mask in a lithography exposure in col. 2, lines 45-58. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the phase mask of Shiraishi to the invention of Matsuyama in order to improve resolution as taught by Shiraishi in col. 2, lines 45-58.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda et al. (Fukuda) in view of Shiraishi (6,665,050).

Fukuda discloses the claimed invention as discussed above; however, Fukuda does not disclose a phase shift mask. Shiraishi discloses the use of a phase shift mask in a lithography

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exposure in col. 2, lines 45-58. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the phase mask of Shiraishi to the invention of Fukuda in order to improve resolution as taught by Shiraishi in col. 2, lines 45-58.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter B. Kim whose telephone number is (571) 272-2120. The examiner can normally be reached on 8:00 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Peter B. Kim  
Primary Examiner  
Art Unit 2851

April 3, 2005